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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,292	09/26/2003	Paul Moroz	237539US6YA	6500
22850	7590	05/03/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			VORTMAN, ANATOLY	
			ART UNIT	PAPER NUMBER
			2835	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No. 10/670,292	Applicant(s) MOROZ ET AL.	
	Examiner Anatoly Vortman	Art Unit 2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2005 (Election).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 11, 12, 16-25, 29, 38 and 39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-15, 26-28 and 30-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-10, 13-15, 26-28, and 30-37 (Group I) in the reply filed on 03/10/05 is acknowledged. The traversal is on the ground(s) that: "outstanding Restriction Requirement has not established that an undue burden would exist if... the claims were examined together" and "examination of the entire application would not place a serious burden on the Examiner." (see p. 1 of the Response). This is not found persuasive because contrary to the Applicant's position, the outstanding Restriction Requirement clearly and explicitly articulates, why the restriction is proper and why the different inventions would require different searches (see paragraphs 2 through 5 of the Requirement). Different searches would constitute an undue burden on the Examiner. Thus, the requirement is still deemed proper and is therefore made FINAL. Non-elected claims 11, 12, 16-25, 29, 38, and 39 have been withdrawn from further consideration on the merits.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "external heat flux" and "the heating component...is absent" recited in claim 35 must be shown. No new matter should be entered.

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Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-10, 13-15, 26-28, and 30-37, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter

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which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Independent claims 1 and 13 recite: “an exterior supporting surface” and “a heating component positioned adjacent to the supporting surface and between the supporting surface and the cooling component”. According to Fig. 1 and 2 of the instant application, the heating component (50) is not positioned adjacent exterior supporting surface (22) and is not positioned between the cooling component (60) and said supporting surface (22), since said surface (22) is facing to the outside of the unit, as clearly depicted on the figures.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4-6 and 35, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 4-6, the terms "surface is rough" and the "surface is smooth" recited in the claims are relative terms which render the claims indefinite. Any surface can be considered rough or smooth, depending on the benchmark the roughness or smoothness is compared to.

Regarding claim 35, the claim recites: “the external heat flux”. There is no antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 8, 10, 13, 14 and 26, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by US/5,323,292 to Brzezinski.

Regarding claims 1, 10, 13, and 14, Brzezinski disclosed (Fig. 1) a substrate holder for supporting a substrate (26), comprising: an exterior supporting surface (the surface of member (14)); a cooling component (12), a heating component (28, 30, 32, 34, 36, 38, 56) positioned adjacent to the supporting surface and between the supporting surface and the cooling component (12); and a sealed contact volume (58) (first means for effectively reducing a thermal mass) positioned between the heating component (28, 30, 32, 34, 36, 38, 56) and the cooling component (12), and formed by a first internal surface and a second internal surface, wherein a thermal conductivity between the heating component and the cooling component is increased when the contact volume is provided with a fluid (column 2, lines 56+).

Regarding claims 2, Brzezinski disclosed (Fig. 1) that the internal surfaces forming the contact volume (58) and the operating surfaces of the heating and cooling components are substantially equal and parallel to each other.

Regarding claim 8, Brzezinski disclosed that said cooling component (12) includes a plurality of the fluid flow channels (positioned between fins (16)).

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Regarding claim 26, Brzezinski disclosed that said fluid is a gas (freon) (column 5, line 47).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 27, and 28, are rejected under 35 U.S.C. 103(a) as being unpatentable over Brzezinski.

Regarding claims 7 and 28, Brzezinski disclosed all, but the specific ranges of the distance between the first and second internal surfaces (i.e., 1-20 microns or 1-50 microns).

It would have been obvious to one having ordinary skill in the cooling art at the time the invention was made to select any appropriate workable ranges of the distance between the surfaces in the device of Brzezinski in order to achieve a desired rate of the heat exchange, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Also said distance is a result effective variable, which directly effects the rate of the heat exchange (i.e. the result).

Alternatively, it would have been obvious to one having ordinary skill in the cooling art at the time the invention was made to select any appropriate distance within the aforementioned ranges in order to achieve a desired rate of the heat exchange, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 27, Brzezinski disclosed all, but the helium gas.

The Official Notice is taken of the fact that helium gas has been notoriously known and extensively used in the cooling art at the time the invention was made as a good heat transporting agent, therefore it would have been obvious to a person of ordinary skill in the cooling art at the time the invention was made to substitute the freon gas with helium gas in the device of Brzezinski in order to achieve desired heat transfer characteristics and to reduce production costs (helium is cheaper than freon, since helium is present in the air and can be easily procured), since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

In re Leshin, 125 USPQ 416.

7. Claims 9, 15, 30-34, 36, and 37, are not rejected over Brzezinski, because:
 - regarding claims 9 and 30-34, the parent claim 9 recites: “the grooves”;
 - regarding claim 36, the claim recites: “at least one thermal sensor”;
 - regarding claim 37, the claim recites: “electrostatic clamping electrode”; and,
 - regarding claim 15, the claim recites: “second means for evacuating a fluid”.

The aforementioned limitations are not taught by Brzezinski.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure:

US/5268812, 5458189, 5615086, 5659458, 5720338, 5880524, 5907474, 5957547, 6133631, 6212074, 6474074, 6504720, 6550263, 6550531, 6665187, and 6681482 disclosed cooling arrangements for electronic devices utilizing heat sinks in combination with sealed fluid volumes to enhance the rate of the heat exchange.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anatoly Vortman whose telephone number is 571-272-2047. The examiner can normally be reached on Monday-Friday, between 10:00 am and 6:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Lynn Feild can be reached on 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AV

A handwritten signature in black ink, appearing to read 'A. Vortman', with a long horizontal stroke extending to the right.

Anatoly Vortman
Primary Examiner
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